

Analytical Data Package Prepared For  
**CH2M Hill Plateau Remediation**

Radiochemical Analysis By

**TestAmerica TARL**

**2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.**

*Data Package Contains 17 Pages*

**Report Nbr: 54279**

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W06510	X13-012	B2N3C7	J2L130425-1	MXKRQ1AA	9MXKRQ10	3002051

Comments:

JANUARY 16, 2013



## Certificate of Analysis

TestAmerica Laboratories, Inc.

CH2M Hill Plateau Remediation Company  
P.O. Box 1600  
Mail Stop -- R3-60  
Richland, WA 99352

January 16, 2013

Attention: Scot Fitzgerald

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SAF Number	:	X13-012
Date SDG Closed	:	December 28, 2012
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W06510
Data Deliverable	:	30-Day / Summary

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### CASE NARRATIVE

#### I. Introduction

On December 13, 2012, one water sample was received at TestAmerica (TARL). Upon receipt, the sample was assigned the following laboratory ID number to correspond with the CH2M specific IDs:

<u>CH2M ID#</u>	<u>TARL ID#</u>	<u>DATE OF RECEIPT</u>	<u>MATRIX</u>
B2N3C7	MXKRQ	12/13/12	WATER

#### II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

During the bi-weekly phone call on September 5, 2012 TARL was notified that all groundwater samples received between October 1, 2012 – December 31, 2012 will have a 30 day turnaround time regardless if the chain of custodies have a turn around time that is greater than 30 days.

#### III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

JANUARY 16, 2013

CH2M Hill Plateau Remediation Company  
January 16, 2013

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**Gamma Spectroscopy**  
Iodine-129 (LL) by method RL-GAM-002

**IV. Quality Control**

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

**V. Comments**

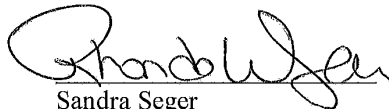
**Gamma Spectroscopy**

Iodine-129 (LL) by method RL-GAM-002:

The LCS, batch blank, sample and sample duplicate (B2N3C7) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Sandra Seger  
Project Manager

for

### Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

**Results in this report relate only to the sample(s) analyzed.**

### Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,...)$ . The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties ( $u_i$ ) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty ( $u_c$ ) multiplied by the coverage factor (1, 2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ( $S/\sqrt{n}$ ), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

## Report Definitions

<b>Action Lev</b>	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
<b>Total Uncert (#s) <math>u_c</math> - Combined Uncertainty.</b>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, $u_c$ the combined uncertainty. The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
<b>Lc</b>	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $L_c = (1.645 * \sqrt{2 * (BkgrndCnt/BkgrndCntMin)/SCntMin}) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct)$ . For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
<b>Lot-Sample No</b>	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
<b>MDC MDA</b>	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt/BkgrndCntMin)/SCntMin}) + 2.71/SCntMin * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct)$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
<b>Rst/MDC</b>	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Rst/TotUcert</b>	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order</b> Number.
<b>RER</b>	The equation Replicate Error Ratio = $(S-D)/[\sqrt{(TPUs^2 + TPUD^2)}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

1/16/2013 11:23:48 AM

# TestAmerica Report

Lab Code: TARL

FormNbr: R    FormatType: FEAD    Version: 05    Rpt Nbr: 54279    File Name: h:\Reportdb\edd\Fead\W06510.Edd, h:\Reportdb\edd\Fead\W06510.Edd

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*	Distilled Volume	Sample On Date:	Collection Date:
9MXKRQ10 B2N3C7			MW6-SBB-A1	X13-012	W06510					12/12/2012 09:21
Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method
3002051	I-129	15046-84-1	4.80E+00	pCi/L	6.3E-01	6.3E-01		2.61E-01	89.7	I129LL_SEP_LEPS
									Alq Size	Unit
									3.8683E+00	L
									Analy Date/Time	Act
									01/11/2013 16:32	I

TestAmerica

rptFeadRadSummaryEdd v3.48

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.  
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).  
B Qual- Analyte was found in the associated laboratory blank above the MDC.

1

# TestAmerica QC Blank Report

Lab Code: TARL

FormNbr: R

FormatType: FEAD

**VersionNbr: 05**

E

File Name: h:\Repo

**File Name:** h:\Reportdb\edd\Fead\Rad\W06510.Edd, h:\Reportdb\edd\Fead\Rad\54279.Ed

Lab Sample Id: MXQ7H1AB

**Client Id:** NA

Moisture/Solids%\*:

**Sdg/Rept Nbr:** W06510 54279

**Matrix:** WATER WATER WATER

QC Type: BLK

Collection Date: 12/12/2012 09:21

**Sample On Date:**

Received Date: 12/13/2012

SAF Nbr	Contract Nbr	Test User		Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	F Suffix	R T y p e				
	MW6-SBB-A19981									AC	H				
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Toi/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analyt Method	Aliq Size/ 3.9677E+00	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Type
3002051	I-129	4.22E-02	pCi/L	1.1E-01	U	2.03E-01	92.4		I129LL_SEP_L	L	01/11/2013				D
BLK	15046-84-1			1.1E-01							20:01				

TestAmerica  
rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.  
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).  
B Qual- Analyte was found in the associated laboratory blank above the MDC.

1

Wednesday, January 16, 2013

FormNbr: R      FormatType: FEAD      VersionNbr: 05      File Name: h:\Reportdb\edd\Fead\W06510.Edd, h:\Reportdb\edd\Fead\W06510.Edd      Lab Code: TARL

**TestAmerica QC Control Sample Report**

Lab Sample Id: MXQ7H1CS      Sdg/Rept Nbr: W06510      54279      Collection Date: 12/12/2012 09:21

Client Id: NA      Matrix: WATER      WATER      Sample On Date:

Moisture/Solids%\*:      QC Type: BS      Received Date: 12/13/2012

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
	MW6-SBB-A19981								AD	H					
Batch # / Qc Type	Analvt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Type
3002051	I-129	1.06E+01	pCi/L	1.2E+00		3.03E-01	91.5	1.03E+01	I129LL_SEP_L	3.8027E+00	01/11/2013			70	D
BS	15046-84-1			1.2E+00				102.7		L	20:03			130	

TestAmerica	U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.	2
rptFeadRadEdd v3.68	J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).	
	B Qual- Analyte was found in the associated laboratory blank above the MDC.	



Wednesday, January 16, 2013

FormNbr: R      FormatType: FEAD      VersionNbr: 05      File Name: h:\Reportdb\edd\Fead\VRad\W06510.Edd, h:\Reportdb\edd\Fead\VRad\54279.Ed      Lab Code: TARL

Lab Sample Id: MXKRQ1CR      Sdg/Rept Nbr: W06510      54279      Collection Date: 12/12/2012 09:21

Client Id: B2N3C7      Matrix: WATER      WATER      Sample On Date:

Moisture/Solids%\*:      QC Type: DUP      Received Date: 12/13/2012

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp					
X13-012	MW6-SBB-A19981								AB	H					
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Ty
3002051	I-129	4.59E+00	pCi/L	6.1E-01	6.1E-01	2.29E-01	90.3		I129LL_SEP_L	3.8677E+00	01/11/2013	4.3	0.5		D
DUP	15046-84-1	4.80E+00		6.1E-01						L	16:36	20.0	3		

TestAmerica	3
rptFeadRadEdd v3.68	
U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.	
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).	
B Qual- Analyte was found in the associated laboratory blank above the MDC.	

JANUARY 16, 2013



Data Review/Verification Checklist  
RADIOCHEMISTRY, First Level Review

1/14/2013 2:38:38 PM

Lot No., Due Date: J2L130425; 01/28/2013  
Client, Site: 384868; PGW 615HANFORD HANFORD  
QC Batch No., Method Test: 3002051; RGAMLEPS Gamma by LEPS  
SDG, Matrix: W06510; WATER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level

*Joe Anton* Date *1/14/13*

TestAmerica Richland  
QAS\_RADCALCv4.8.44

Page 1

JANUARY 16, 2013

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## Data Review Checklist RADIOCHEMISTRY Second Level Review

Batch Number: 3002051

Review Item	Yes (✓)	No (✓)	NA (✓)
<b>A. Sample Analysis</b>	✓		
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
<b>C. Other</b>			✓
1. Are all Non-conformances included and noted?			
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: CRDL = 0.5 pCi/L

Second Level Review: Shonda W. Jones

Date: 1/15/13

LS-038B, Rev. 10, 9/07

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				C.O.C. # <b>X13-012-004</b>		
Collector <b>F.M. Hall</b>		Contact/Requester <b>WATERS-HUSTED, K</b>	Telephone No. <b>376-4650</b>		Page 1 of 1			
SAF No. <b>X13-012</b>		Sampling Origin <b>Hanford Site</b>	Purchase Order/Charge Code <b>300071ES20</b>					
Project Title <b>Pre-purge Special Sampling, December 2</b>		Logbook No. <b>HNF-N-506 36/44</b>	Ice Chest No. <b>N/A</b>					
Shipped To (Lab) <b>TestAmerica Incorporated, Richland</b>		Method of Shipment <b>GOVERNMENT VEHICLE</b>	Bill of Lading/Air Bill No. <b>N/A</b>					
Protocol <b>SURV</b>		Priority: <b>30 Days</b>	Offsite Property No. <b>N/A</b>					
POSSIBLE SAMPLE HAZARDS/REMARKS **Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.**		SPECIAL INSTRUCTIONS 200 Area Generator Knowledge Information Form applies. The CACN for all analytical work at WSCF is 401647.		Hold Time <b>200</b>		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2N3C7	N	W	12/12/12	0921	1x20-mL P	Activity Scan	6 Months	None
B2N3C7	N	W	↓	↓	2x4L G/P	1129LL_SEP_LEPS_LL: 1-129 (1)	6 Months	None

SDG#W06570  
LOT#J2L130425 W12-137P  
Report: 1-28-13 1-11-12



Relinquished By <b>F.M. Hall</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>DEC 12 2012</b>	Received By <b>SSU #1</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>DEC 12 2012</b>	Matrix *
Relinquished By <b>SSU #1</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>DEC 12 2012</b>	Received By <b>CFulton</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>12-13-12 0900</b>	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air
Relinquished By <b>CFulton</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>12-13-12 0800</b>	Received By <b>Lucas Velazquez</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time <b>12-13-12</b>	DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION								Date/Time
Disposal Method (e.g., Return to customer, per lab procedure, used in process)								Date/Time

A-6004-842 (REV 2)

PRINTED ON 11/14/2012

JANUARY 16, 2013



Sample Check-in List

Date/Time Received: 12-13-12 @ 1005 Container GM Screen Result: (Airlock) .09 Initials [LV]  
Sample GM Screen Result (Sample Receiving) .05 Initials [LV]

Client: PGW SDG #: W06510 NA [ ] SAF #: X13-012 NA [ ]

Lot Number: J2L130425

Chain of Custody # X13-012-004

Shipping Container ID: Hand Delivery NA [X] Air Bill Number: NA [X]

Samples received inside shipping container/cooler/box Yes [LV] Continue with 1 through 4. Initial appropriate response.

No [ ] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [LV]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [LV]
3. Cooler temperature: \_\_\_\_\_ °C NA [LV]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [LV]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [LV] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 1x vial, 2x LVP

8. Sample holding times exceeded? NA [ ] Yes [ ] No [LV]

9. Samples have:  
\_\_\_\_\_ tape \_\_\_\_\_ hazard labels  
[LV] custody seals [LV] appropriate sample labels

10. Matrix:  
\_\_\_\_\_ A (FLT, Wipe, Solid, Soil) [LV] I (Water)  
\_\_\_\_\_ S (Air, Niosh 7400) \_\_\_\_\_ T (Biological, Ni-63)

11. Samples:  
[LV] are in good condition \_\_\_\_\_ are leaking  
\_\_\_\_\_ are broken \_\_\_\_\_ have air bubbles (Only for samples requiring no head space)  
Other N/A

12. Sample pH appropriate for analysis requested Yes [LV] No [ ] NA [ ]  
(If acidification is necessary, then document sample ID, initial pH, amount of HNO<sub>3</sub> added and pH after addition on table overleaf)

RPL ID # of preservative used: N/A

13. Were any anomalies identified in sample receipt? Yes [ ] No [LV]

14. Description of anomalies (include sample numbers): NA

JANUARY 16, 2013



15. Sample Location, Sample Collector Listed on COC? \* Yes ☒ No ☐  
\*For documentation only. No corrective action needed.

16. Additional Information: N/A

☐ Client/Courier denied temperature check.

☒ Client/Courier unpack cooler.

Sample Custodian: LUGOY Date: 12-13-12

Client Informed on N/A by N/A Person contacted N/A

☒ No action necessary; process as is

Project Manager: [Signature] Date: 12/13/12

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH
<u>12/13/12</u> <u>TALP</u>				<u>12/13/12</u>			
<u>12/13/12</u>				<u>12/13/12</u>			

J2 L130425

DW 12/13/12

LS-023, Rev. 15, 07/11

See over for additional information.

Sample Preparation/Analysis										Balance Id: 1120482733			
1/11/2013 4:02:55 PM 384868, CH2M Hill Plateau Remediation Company , Pacific Northwest National Lab BN I-129 Prp/Sep GAM002 TB Gamma by LEPD 5I CLIENT: HANFORD AnalytDueDate: 01/28/2013										Pipet #:			
Batch: 3002051 WATER pCi/L SEQ Batch, Test: None All Tests: 3002051 BNTB,										Sep1 DT/Tm Tech: Sep2 DT/Tm Tech:			
PM, Quote: SS, 57671										Prep Tech: NyeP			
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MXKRQ-1-AA	3868.30g/in	3868.30g	ITA12501	3868.30g	12/27/12			33.2mg	200	14	1952	1/11/13	
J2L130425-1-SAMP													
12/12/2012 09:21													
2 MXKRQ-1-AC-X	3867.70g/in	3867.70g	ITA12502	3867.70g	12/27/12			33.4mg		15	1956		Beta: -6.45E-04 uCi/Sa
J2L130425-1-DUP													
12/12/2012 09:21													
3 MXQ7H-1-AA-B	3967.70g/in	3967.70g	ITA12503	3967.70g	12/27/12			34.2mg		14	2321		Beta: -6.45E-04 uCi/Sa
J3A020000-51-BLK													
01/03/2013 08:11 pd													
4 MXQ7H-1-AC-C	3802.70g/in	3802.70g	ISD1498	3802.70g	10/08/12			34.9mg		15	2323		Beta:
J3A020000-51-LCS													
01/03/2013 08:11 pd													
<b>Comments:</b> MXQ7H-BLK Comments: S-12-00228S-12-00193, P-12-00672, P-12-00571, DUP-12-00548, S-12-00228, S-12-00188, S-12-00139, P-12-00569, S-12-00141, S-12-00193													
<b>All Clients for Batch:</b> 384868, CH2M Hill Plateau Remediation Company Pacific Northwest National Lab, SS, 57671													
<b>MXKRQ1AA-SAMP Constituent List:</b> I-129 RDL: 0.50E+00 pCi/L LCL: UCL: RPD: MXQ7H1AA-BLK: I-129 RDL: 0.50E+00 pCi/L LCL: UCL: RPD: MXQ7H1AC-LCS: I-129 RDL: 5 pCi/L LCL: 70 UCL: 130 RPD: 20													
TestAmerica Richland Wa.	Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2	ISV - Insufficient Volume for Analysis										WO Cnt: 4	
												Prep_SamplePrep v4.8.60	

1/11/2013 4:02:56 PM		<b>Sample Preparation/Analysis</b>				Balance Id:1120482733							
		BN I-129 Prp/Sep GAM002 TB Gamma by LEPD SI CLIENT: HANFORD				Pipet #:							
AnalytDueDate: 01/28/2013						Sep1 DT/Tm Tech:							
Batch: 3002051 SEQ Batch, Test: None		pCi/L				Sep2 DT/Tm Tech:							
		<b>Prep Tech: JorgensonD,NyeP</b>											
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
<div style="display: flex; justify-content: space-between;"> <div> <b>MXKRQ1AA-SAMP Calc Info:</b>            Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B  <b>MXQ7H1AA-BLK:</b>            Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B  <b>MXQ7H1AC-ICS:</b>            Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B         </div> <div style="width: 80%; height: 400px; border: 1px solid black;"></div> </div>													
TestAmerica		Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2				Page 2		ISV - Insufficient Volume for Analysis		WO Cnt: 4		Prep_SamplePrep v4.8.60	
Richland Wa.		pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added											



JANUARY 16, 2013

1/14/2013 2:37:57 PM

# ICOC Fraction Transfer/Status Report

ByDate: 1/15/2012, 1/19/2013, Batch: '3002051', User: 'ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>3002051</b>				
AC	Rev1C	NyeP	1/3/2013 3:18:14 PM	
SC		davilan	IsBatched 1/3/2013 8:12:42 AM	ICOC_RADCALC v4.8.49
SC		NyeP	InPrep 1/3/2013 3:18:14 PM	RL-PRP-004 REVISION 2
SC		JorgensonD	InPrep 1/3/2013 3:18:27 PM	RL-PRP-004 REVISION 2
SC		NyeP	Prep1C 1/8/2013 1:14:10 PM	RL-PRP-004 REVISION 2
SC		JorgensonD	Sep2C 1/11/2013 3:57:02 PM	RL-GAM-002 REVISION 3
SC		DawkinsO	InCnt1 1/11/2013 4:30:20 PM	RL-CI-007 REV. 2
SC		ClarkR	CalcC 1/14/2013 8:57:27 AM	RL-CI-007 REV. 2
SC		antonsonl	Rev1C 1/14/2013 2:37:51 PM	RL-DR-001 Rev 2
AC		JorgensonD	1/3/2013 3:18:27 PM	
AC		NyeP	1/8/2013 1:14:10 PM	
AC		JorgensonD	1/11/2013 3:57:02 PM	
AC		DawkinsO	1/11/2013 4:30:20 PM	
AC		ClarkR	1/14/2013 8:57:27	
AC		antonsonl	1/14/2013 2:37:51 PM	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland  
Richland Wa.

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Grp Rec Cnt: 7  
ICOCFractions v4.8.44